

UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

_____)	
SMITH & NEPHEW, INC.)	
Plaintiff,)	
)	
v.)	CIVIL ACTION NO. 10-cv-10951-RWZ
)	
INTERLACE MEDICAL, INC.)	
Defendant)	
_____)	

**DECLARATION OF NEVILLE J. HOGAN, PH.D. IN SUPPORT OF
OPENING MARKMAN BRIEF OF PLAINTIFF SMITH & NEPHEW, INC.**

I, Neville J. Hogan, Ph.D., hereby state and declare as follows:

1. My name is Neville J. Hogan. I am the Sun Jae Professor of Mechanical Engineering at the Massachusetts Institute of Technology with an office at 77 Massachusetts Avenue, Room 3-146, Cambridge, MA 02139.

2. I have been retained by counsel for Plaintiff Smith & Nephew, Inc. in connection with the above-captioned litigation. In connection with my retention in this matter, I have been asked to provide an opinion about:

- the qualifications required to be considered a person of ordinary skill in the art of mechanical engineering design; and
- the meaning of the term “drive” in the context of mechanical engineering design.

I. QUALIFICATIONS AND EXPERIENCE

3. I am Professor of Mechanical Engineering at the Massachusetts Institute of Technology (MIT). I am also Professor of Brain and Cognitive Sciences at MIT. Born in Dublin, Ireland, I obtained a Diploma in Engineering (with distinction) from Dublin Institute of

Technology in 1970. I also hold Master of Science, Mechanical Engineer and Doctor of Philosophy degrees (all in mechanical engineering) from MIT. Following industrial experience as a designer and product development engineer in Ireland, I joined the faculty of MIT's School of Engineering in 1979. I have served as head of the Mechanical Engineering Department's Design, Systems and Control Division.

4. I am presently the Director of the Newman Laboratory for Biomechanics and Human Rehabilitation, a research laboratory in MIT's School of Engineering. Research in the Newman Laboratory has included extensive study of machines that interact with humans for sports, therapeutic or assistive purposes, including their design, materials, construction and control.

5. I presently serve on the Board of Directors of Interactive Motion Technologies, Inc., a healthcare technology company offering innovative robotic tools to treat neurological and motor impairments. I presently serve on the Advisory Board of Advanced Mechanical Technologies, Inc., a company offering advanced measurement technologies.

6. In 1997, I was awarded an Honorary Doctorate from the Delft University of Technology. In 2004, I was awarded an Honorary Doctorate from the Dublin Institute of Technology. In 2004, I was awarded the Silver Medal of the Royal Academy of Medicine in Ireland. In 2008, I received the Henry M. Paynter Outstanding Investigator Award from the American Society of Mechanical Engineers.

7. In 2009, I was appointed Sun Jae Professor of Mechanical Engineering at MIT.

8. In 2009, I was awarded the Rufus T. Oldenburger Medal by the American Society of Mechanical Engineers.

9. I hold eight (8) issued US patents and have applied for an additional two (2) US

patents.

10. Among my teaching activities at MIT I have taught an introduction to mechanical design in which students design, build, test and operate devices which compete against their classmates' designs in a contest held toward the end of the academic term. I have also taught a capstone subject in mechanical design in which students tackle advanced design projects chosen to integrate and consolidate disciplinary material they have learned in their previous engineering subjects.

11. A complete list of my qualifications, including a list of my publications within the preceding ten years, is attached hereto as **Exhibit 1**.

II. INFORMATION CONSIDERED

12. In connection with rendering the opinions stated herein, I have reviewed and evaluated:

- US Patent No. US 7,226,459 B2 (the "'459 Patent").
- US Patent Application Publication No. US 2009/0270895 A1.
- "Criteria for Accrediting Engineering Programs" published by the Engineering Accreditation Commission, ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202.

III. ORDINARY SKILL IN THE ART OF MECHANICAL DESIGN

13. I have been asked to render an opinion about the qualifications required to be considered a person of ordinary skill in the art of mechanical engineering design, which I believe to be the relevant technological field of the inventions disclosed in the '459 Patent.

14. The Engineer's Council for Professional Development was established in 1932 and renamed the Accreditation Board for Engineering and Technology (ABET) in 1980. Among the valuable services it provides is the appraisal and accreditation of engineering curricula. Among the criteria for accreditation, ABET requires that:

“engineering programs must demonstrate that their students attain the following outcomes: ...

(c) an ability to design a system, component, or process ...”

As of October, 2009 ABET listed 434 accredited programs in Mechanical Engineering.

15. It is my opinion that “a person of ordinary skill in the art of mechanical engineering design” would have a technical background similar to that obtained from an ABET-accredited undergraduate program in Mechanical Engineering.

IV. THE MEANING OF “DRIVE” IN MECHANICAL ENGINEERING DESIGN

16. I have been asked to render an opinion about the meaning of the term “drive” as understood in the context of mechanical engineering design, which is the relevant field of art for the inventions disclosed in the ’459 Patent.

17. In the context of mechanical engineering design, the term “drive” refers to a system or assemblage of components configured so as to enable the transfer of power from a power source (such as a motor or automobile engine) to a power sink or load (such as the motion of an automobile).

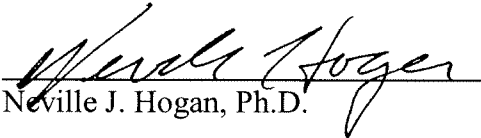
18. In the context of mechanical engineering design, a “drive” may comprise numerous mechanical components including, but not limited to, shafts, fluids, pumps, gears and bearings. One or more of the sub-assemblies of a “drive” may constitute a mechanism.

19. The term “drive” is distinct from the term “mechanism.” In the context of mechanical engineering design, a mechanism is an assemblage of components configured so that their relative motion is constrained with at least one degree of freedom.

20. A mechanism may be a component of a drive but not all drives are mechanisms. For example, a fluid coupling or torque converter commonly used in an automobile is not a mechanism. Conversely, in some cases a mechanism may be deployed as a drive but not all

mechanisms are drives. A mechanism may be part of a mechanical design unrelated to a drive.

Signed under the pains and penalties of perjury this 13th day of October, 2010.


Neville J. Hogan, Ph.D.